CLAIMS

1. A projected gimbal point drive system, comprising:

a spindle capable of applying a torque, the spindle having a concave spherical surface formed on a lower portion of the spindle;

a wafer carrier disposed partially within the lower portion of the spindle, the wafer carrier having a convex spherical surface formed on a surface opposite the concave spherical surface of the spindle; and

a drive cup disposed between the spindle and the wafer carrier, the drive cup having a concave inner surface and a convex outer surface, wherein the drive cup allows the wafer carrier to be tilted about a predefined gimbal point.

2. A projected gimbal point drive system as recited in claim 1, wherein the gimbal point is located on an interface between a polishing pad and a surface of a wafer held by the wafer carrier.

3. A projected gimbal point drive system as recited in claim 1, wherein the gimbal point is located below an interface between a polishing pad and a surface of a wafer held by the wafer carrier.

4. A projected gimbal point drive system as recited in claim 1, wherein the gimbal point is located above an interface between a polishing pad and a surface of a wafer held by the wafer carrier.

5. A projected gimbal point drive system as recited in claim 1, wherein the drive cup 446 includes a first set of elongated slots located in the convex outer surface of the drive cup.

6. A projected gimbal point drive system as recited in claim 5, further comprising a first set of drive keys extending out of the concave spherical surface of the spindle.

7. A projected gimbal point drive system as recited in claim 6, wherein the first set of drive keys extend into the first set of slots 448 in the drive cup.

8. A projected gimbal point drive system as recited in claim 1, wherein the drive cup includes a second 444 set of elongated slots located in the concave inner surface of the drive cup.

9. A projected gimbal point drive system as recited in claim 8, further comprising a second set of drive keys extending out of the convex spherical surface of the wafer carrier.

10. A projected gimbal point drive system as recited in claim 9, wherein the second set of drive keys extend into the second set of drive slots of the drive cup.

11. A projected gimbal point drive cup, comprising:

a first set of elongated slots located in a convex outer surface of the drive cup; and

a second set of elongated slots located in a concave inner surface of the drive cup, wherein the drive cup allows a wafer carrier to be tilted about a predefined gimbal point.

12. A projected gimbal point drive cup as recited in claim 11, wherein a first set of drive keys extending out of a concave spherical surface of a spindle extend into the first set of slots in the drive cup.

13. A projected gimbal point drive cup as recited in claim 12, wherein a second set of drive keys extending out of a convex spherical surface of the wafer carrier extend into the second set of slots of the drive cup.

14. A projected gimbal point drive cup as recited in claim 13, wherein the first set of slots comprises two elongated slots.

15. A projected gimbal point drive cup as recited in claim 14, wherein the two elongated slots of the first set of slots are separated by about 180 degrees around the circumference of the drive cup.

16. A projected gimbal point drive cup as recited in claim 15, wherein the second set of slots comprises two elongated slots.

17. A projected gimbal point drive cup as recited in claim 16, wherein the two elongated slots of the second set of slots are separated by about 180 degrees around the circumference of the drive cup.

18. A projected gimbal point drive cup as recited in claim 17, wherein the first set of slots are located about ninety degrees around an axis of symmetry of the drive cup from the second set of elongated slots.

19. A method for driving a projected gimbal point system, comprising the operations of:

providing a spindle capable of applying a torque, the spindle having a concave spherical surface formed on a lower portion of the spindle;

disposing a wafer carrier partially within the lower portion of the spindle, the wafer carrier having a convex spherical surface formed on a surface opposite the concave spherical surface of the spindle; and

coupling the spindle to the wafer carrier using a drive cup disposed between the spindle and the wafer carrier, the drive cup having a concave inner surface and a convex outer surface, wherein the drive cup allows the wafer carrier to be tilted about a predefined gimbal point.

20. A method as recited in claim 19, wherein the gimbal point is located on an interface between a polishing pad and a surface of a wafer held by the wafer carrier.

21. A method as recited in claim 19, wherein the gimbal point is located below an interface between a polishing pad and a surface of a wafer held by the wafer carrier.

22. A method as recited in claim 19, wherein the gimbal point is located above an interface between a polishing pad and a surface of a wafer held by the wafer carrier.